

$$\text{Sin}(hc) = [\text{Cos}(D-L) - \text{Cos}(D+L)] / 2 + [\text{Cos}(S) + \text{Cos}(S-2D) + \text{Cos}(S-2L) + \text{Cos}(S-2t)] / 4$$



<b>1.</b>	D :	<input type="text"/>	D :	<input type="text"/>
	L :	<input type="text"/>	L :	<input type="text"/>
	t :	<input type="text"/>	t :	<input type="text"/>
			2D :	<input type="text"/>
			2L :	<input type="text"/>
			2T :	<input type="text"/>

1. All angle in amin !
2. t means LHA; 0 to 360 E.
3. cos() sign, value? See Table below.
4. For full benefit use interpolation.
- 5: Use algebraic sign rules. They are:
  - + [ pos # ] : add.    - [ pos # ] : subtract.
  - + [ neg # ] : subtract.    - [ neg # ] : add

<b>2.</b>	D :	<input type="text"/>	D :	<input type="text"/>	(D+L) :	<input type="text"/>
	-L :	<input type="text"/>	+L :	<input type="text"/>	+t :	<input type="text"/>
	A = (D-L) old :	<input type="text"/>	A = (D+L) old :	<input type="text"/>	A = S old :	<input type="text"/>
	Rule # :	<input type="text"/>	Rule # :	<input type="text"/>	Rule # :	<input type="text"/>
	sign :	<input type="text"/>	sign :	<input type="text"/>	sign :	<input type="text"/>
	B :	<input type="text"/>	B :	<input type="text"/>	B :	<input type="text"/>
	cos(D-L) :	<input type="text"/>	cos(D+L) :	<input type="text"/>	cos(S) :	<input type="text"/>
	S :	<input type="text"/>	S :	<input type="text"/>	S :	<input type="text"/>
	-2D :	<input type="text"/>	-2L :	<input type="text"/>	-2t :	<input type="text"/>
	A = (S-2D) old :	<input type="text"/>	A = (S-2L) old :	<input type="text"/>	A = (S-2t) old :	<input type="text"/>
	Rule # :	<input type="text"/>	Rule # :	<input type="text"/>	Rule # :	<input type="text"/>
	sign :	<input type="text"/>	sign :	<input type="text"/>	sign :	<input type="text"/>
	(S-2D) new = B :	<input type="text"/>	B :	<input type="text"/>	B :	<input type="text"/>
	cos(S-2D) :	<input type="text"/>	cos(S-2L) :	<input type="text"/>	cos(S-2t) :	<input type="text"/>

<b>3.</b>	Put pos values under 'pos' Put neg values under 'neg'. Total both. Put the neg. total under the pos. total. Subtract.	
cos(S) :	pos	neg
cos(S-2D) :	pos	neg
cos(S-2L) :	pos	neg
cos(S-2t) :	pos	neg
+	<input type="text"/>	<input type="text"/>
-	<input type="text"/>	<input type="text"/>
=	<input type="text"/>	<input type="text"/>
1/4: Q :	<input type="text"/>	<input type="text"/>

COS(D-L)	<input type="text"/>	Q	<input type="text"/>
COS(D+L)	<input type="text"/>	P	<input type="text"/>
+	<input type="text"/>	Q+P :	<input type="text"/>
1/2: P =	<input type="text"/>		<input type="text"/>
			5 4 0 0'
			-

**hc in amin :**

Final Calculation to find hc :

Assume Q+P contains 2345 .

a. find 2345 in cos( ) - column (bl on gr).  
 b. in cell left of 2345 find 4586'.  
 c. enter 4586' into field under 5400'.  
 d. subtraction yields hc in amin.

*H.O.C.*  
4/23/2013

Out Of Bounds

CelNavTest1 prostphaeresis.pdf, .ods

<b>OOB L :</b>	<b>Rule1 :</b>	<b>Rule2 :</b>	<b>Rule3 :</b>	<b>Rule4 :</b>	<b>OOB R :</b>
A < 0 ← 0	↔ 5,400'	↔ 10,800'	↔ 16,200'	↔ 21,600'	→ A > 21,600'
A = -A repeat	B = A cos : +	B = 10,800' - A cos : -	B = A - 10,800' cos : -	B = 21,600' - A cos : +	B = B - 21,600' repeat
<b>Example:</b> A = - 12,345'	A = 2345'	A = 8455'	A = 13,145'	A = 19,255'	A = 34,567'
<b>Result:</b> A = +12,345'	B = 2345' cos : + 8066	B = 10,800' - 8455' B = 2345' cos : - 8066	B = 13,145' - 10,800' = 2345' cos : - 8066	B = 21,600' - 19,455' = 2345' cos : + 8066	B = 34,567' - 21,600' = 2967' repeat

The data in above examples have been chosen for the demonstration of the pertaining algebra - they have no other navigational meaning.